S/186/61/003/002/012/018
E111/E452

Sorption of long-life fission ...

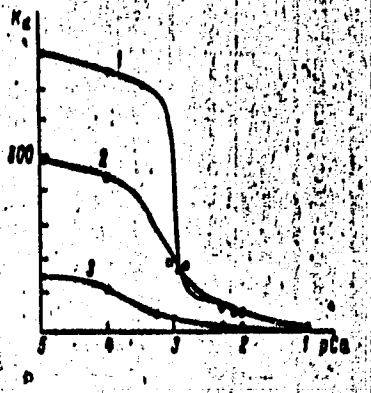

Fig.1.

Fig.2.

See attached p. 4

Card 6/7

Card 7/7

36493
S/186/62/004/002/009/010
E075/E136

217200

AUTHORS: Kokotov, Yu.A., Popova, R.F., Liu Ching Chih and Mao Shih Ch'i

TITLE: Sorption of long-lived fission products by soils and clay minerals. II. Sorption of ^{144}Ce by soils

PERIODICAL: Radiokhimiya, v.4, no.2, 1962, 227-228

TEXT: The authors investigated sorption of ^{144}Ce by two different soils: 1) Southern black earth, and 2) turf - strongly podsol soil (podsol horizon). The sorption from aqueous solution of micro-quantities of ^{144}Ce on these soils as well as the sorption on ion-exchange resin KY-2 (KU-2) from 0.001 N KNO_3 was investigated in relation to pH. It was found that ^{144}Ce is strongly sorbed by the resin in strongly acid solutions and strongly sorbed by the soils in weakly acid solutions. Sorption of ^{144}Ce was decreased considerably on all sorbents in alkaline solutions. The authors investigated also the possibility of desorbing ^{144}Ce from the soils by treating them with salt solutions, nitric acid and various complex-forming

Card 1/2

S/186/62/004/003/012/022
E075/E436

AUTHORS: Kokotov, Yu.A., Popova, R.F.

TITLE: Sorption of long lived fission products by soils and clay minerals. III. Selectivity of soils and clays for Sr^{90} under different conditions

PERIODICAL: Radiokhimiya, v.4, no.3, 1962, 328-334

TEXT: The authors continued their study of the distribution of coefficients of Sr^{90} between aqueous solutions and soils and clays of the USSR. It was found that differences in the dependence on pH of the distribution coefficients for the various soils can be explained by their different contents of the macrocomponent (ion Ca^{2+}). An increase in the quantity of Ca^{2+} in a system leads to a lowering of the height of the maximum of the curve relating the distribution coefficient for Sr^{90} to pH and shifts the maximum towards the higher values of pH. Analogous changes occur when consecutive macrocomponent exchange takes place for the series Na^{+}, Mg^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}. The absence of full correlation between the values of distribution coefficients for Sr^{90} with the exchange capacity of soils and,

Card 1/2

Card 2/2

S/080/62/035/006/007/013
D204/D307

AUTHORS: Kokotov, Yu. A. and Popova, R. F.

TITLE: The sorption of long-life fission products by soil and clay minerals

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 6, 1962, 1242-1245

TEXT: The sorption of ^{90}Sr, ^{137}Cs and ^{144}Ce on a variety of Soviet soils and clays was studied in continuation of earlier work, by measuring the partition coefficient K_d defined as $\frac{\Gamma}{C}$ where Γ = amount of the ion sorbed by 1 kg of soil or clay and C = amount of the ion in solution, under equilibrium conditions. For ^{90}Sr, the dependence of K_d on the pH of soil suspension was found to be pronounced but varied with the type of soil. Maximum sorption occurred at pH 6 - 8 in soils where considerable substitution of Ca^{2+} by H^+

Card 1/ 3

S/080/62/035/006/007/013
D204/D307

The sorption of ...

could, however, be considerably increased by adding salts to the solution. There are 4 figures and 1 table.

SUBMITTED: May 23, 1961

Card 3/3

KOKOTOV, Yu. A.; POPOVA, R. F.

Sorption of long-lived fission products by soils and clay elements. Part 3: Selectivity of soils and clays with respect to Sr^{90} under various conditions. Radiokhimiia 4 no.3:328-334 '62. (MIRA 15:10)

(Strontium--Isotopes) (Soil chemistry)
(Ion exchange)

L 54462-65
ACCESSION NR: AT5013638

UR/0000/65/000/000/0076/0079
541.183:546.36:631.4+552.52+553.677

3
B+1

AUTHOR: Kokotov, Yu. A.; Popova, R. F.

TITLE: Radiochromatographic study of the sorption of trace amounts of Cs-137 by soils, clays, and micas

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Radiokhimicheskiye opredeleniya mikroelementov (Radiochemical methods for determining trace [illegible] stavey. Moscow, Izd-vo Nauka, [illegible]

TOPIC TAGS: column chromatography, radiocesium sorption, radiocesium desorption, [illegible] column, clay column, mica column, cesium fixation, isotope assimilation

ABSTRACT: The authors carried out radiochromatographic experiments on the desorption of cesium-137 in order to shed some light on the mechanism of sorption [illegible] isotope by soils and clays. An analysis of the chromatograms obtained [illegible] earlier simultaneously [illegible] mechanisms of ion exchange [illegible] sorption by [illegible] found that Cs[illegible] is fixed [illegible]

Card 1/2

L 54462-65
ACCESSION NR: AT5013638

(particularly on hydrobiotite) and black earth. The lowest fixation was observed on kaolinite and red earth. The ability of soils to fix trace amounts of Cs^{137} is not a function of the mechanical composition of the soil alone, since it is also a function of the mineralogical composition. In the authors' view, differences in the degree of fixation of trace amounts of Cs^{137} are one of the reasons for differences in the assimilation of these isotopes by these soils. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 13Feb63 ENCL: 00 SUB CODE: GC, NP

NO REF SOV: 004 OTHER: 007

Card 2/2

KOKOTOV, Yu.A.

Application of the law of mass action to adsorption equilibrium. Zhur. fiz. khim. 39 no.2:300-304 F '65. (MIRA 18:4)

1. Agrofizicheskiy nauchno-issledovatel'skiy institut, Leningrad.

KOKOTOV, Yu.A.

Effect of the polyfunctionality of the ion exchanger on the isotherm and selectivity of ion exchange. Zhur.fiz.khim. 39 no.7:1653-1661 Jl '65. (MIRA 18:8)

1. Leningradskiy agrofizicheskiy institut.

KOKOTOVIC, Miroslav

Hundred years of trade postal service in Zagreb.
PTT zbor 16 no.11:256-257 N '62.

KOKOTOVIC, Petar, ins. (Beograd)

Electronic devices for automatic control exhibited at the 6th International Technical Fair in Belgrade. Avtomatika 3 no.4: 273 Ag '62.

BRKIC, Tomislav, ins.; KOKOTOVIC, Petar, inz.

Computing the voltage regulator with the aid of Mitrovic's algebraic method. Elektroprivreda 15 no.6/7;277-286 Je-Jl '62.

1. Hidroelektrana u izgradnji "Bajina Basta" (for Brkic).
2. Institut za utomatiku i telekomunikacije, Beograd (for Kokotovic).

KOKOTOVIC, Petar, inz.; KACKIN, Dorde, inz.

Possibilities of an optimum cooling control in refrigerators with movable grates. Automatika 4 no.2:122-125 '63.

1. Institut za automatiku "Mihailo Pupin", Beograd (for Kokotovic).
2. Fabrika rashladnih uredaja "Jugostroj", Beograd (for Kackin).

KOKOTOVIC, Petar, mgr. ing. el.

Structural method for simultaneous finding of the effect functions for parameters in feedback linear systems. Automatika 5 no.2: 96-99 '64.

1. Mihailo Pupin Institute, Belgrade, Volgina 15.

KOKOTOVIC, Petar, ing., saradnik (Beograd, Cvijiceva 63)

Analogous automation for drawing the characteristic curves of the generalized Mitrovic method. Tehnika Jug 19 no.5: Suppl:Elektrotehnika 13 no.5:899-901 My '64.

1. Mihailo Pupin Institute of Automation and Telecommunication, Belgrade.

KOKOTOVICH, P. (Belgrad)

Sensitivity points method in the study and optimization of linear control systems. Avtom. i telem. 25 no.12:1670-1676 D '64 (MIRA 18:1)

L 48962-65 EWT(d)/EWP(k)/EWP(h)/EWP(v)/EWP(l) Pe-4/Pq-4/Pf-4/Pg-4/Pk-4/Pl-4
IJP(c) BC

ACCESSION NR: AP5011914 UR/0103/65/026/004/0730/0750 50 B

AUTHOR: Kokotovich, P. V. (Belgrade); Rutman, R. S. (Moscow)

TITLE: Sensitivity of automatic control systems

SOURCE: Avtomatika i telemekhanika, v. 26, no. 4, 1965, 730-750

TOPIC TAGS: automatic control system, automatic control

ABSTRACT: This article is an extensive and systematic survey of studies [illegible] the sensitivity of automatic [illegible] variation of [illegible]s and with the application of sensitivity theory to the synthesis of [illegible]. A bibliography of 157 art[illegible] [illegible] to 1964 [illegible] concentrated on the [illegible] sensitivity theory and also on the [illegible] concepts [illegible] theory. The main problem [illegible] the study of the supplementary motion of the control system (difference between the basic motion and the motion stipulated by the variation of parameters).

Card 1/3

L 48962-65

ACCESSION NR: AP5011914

The articles surveyed can be subdivided into three basic groups (sections): a) analysis of supplementary motion; b) synthesis of control ... taking account of certain constraints on the supplementary ...; and c) development of methods for the active control of parameters with the aim of improving the performance of the system. The first section surveys those articles which deal with sensitivity equations and the structural ... for their solution. It deals also with methods for determining in- ... quantitative sensitivity estimates (frequency characteristics of the ... function) and with stud... sensitivity ... the theory of the stability of ... ance, systems whose ... with bounded sensitivity, and systems which are optimal with ... sensitivity. The third section deals with ... char- ... feature is the use of a sensitivity function for determining com- ... the gradient of a functional whose extremal values are connected ... performance of the system.

Card 2/3

L 48962-65

ACCESSION NR: AP5011914

The articles surveyed can be subdivided into two groups. The first group includes those articles on studies of the simplest processes in which calculation of gradient components and adjustments of parameters are [illegible] simultaneously and in which iterative methods are employed to realize the optimization process. The second group of articles deals with [illegible] processes in which the gradient components and the adjustment of parameters are simultaneous. Articles concerning determination of dynamic characteristics of a control system, using a parameter tracking servo (self-adjusting model), and articles on the problem of self-adjustment in the primary control circuit are also surveyed. Orig. art. has 3 figures and 46 [illegible].

ASSOCIATION: none

SUBMITTED: 17Jul64	ENCL: 00	SUB CODE: IE
NO REF SOV: 000	OTHER: 000	ATD PRESS: 3245-F

Card 3/3

L 41137-66 EWT(d)/EWP(k)/EWP(h)/EWP(v)/EWP(l) IJP(c) BC

ACC NR: AP6021397 SOURCE CODE: UR/0103/66/000/006/0149/0163

AUTHOR: Kokotovich, P. V. --- Kokotovic, P. V. (Belgrade); Rutman, R. S. (Moscow)

ORG: none

74 B

TITLE: The sensitivity matrix and its simulation

SOURCE: Avtomatika i telemekhanika, no. 6, 1966, 149-163

TOPIC TAGS: self adaptive control, mathematic matrix, nonlinear automatic control system, mathematic model, simulation

ABSTRACT: The paper contains an exposition of methods for the construction of a single-parameter sensitivity model, the coordinates of which are the components of single-parameter sensitivity, and of a gradient sensitivity model, the coordinates of which are functions of the sensitivity of relatively different parameters. It is possible to solve the first problem for the general case of a nonlinear nonstationary system. A limitation to linear stationary systems is necessary in the solution of the second problem. The exposition in the paper is closely linked with the graphic representation of the system and makes use of the Mason graph technique. In the system graph branches are broken out, on which are concentrated all variable parameters.

Card 1/2 UDC: 62-501.1

ACC NR: AT6029243 SOURCE CODE: UR/0000/66/000/000/0361/0368

AUTHOR: Kokotovich, P. V.

ORG: none

TITLE: Determination of gradient components for optimized analog computer analysis with periodization of the solutions

SOURCE: Vsesoyuznaya konferentsiya-seminar po teorii i metodam matematicheskogo modelirovaniya. 4th, Kiev, 1964. Vychislitel'naya tekhnika v upravlenii (Computer technology in control engineering); trudy konferentsii. Moscow, Izd-vo Nauka, 1966, 361-368

TOPIC TAGS: analog digital computer, error minimization, optimal automatic control

ABSTRACT: The feasibility of utilizing a simulated object for a gradient determination of the optimized quantity was investigated. Nonlinear, nonstationary equations were constructed for gradient component determination by simulation of the sensitivity equations. By this method, the gradient components can be determined either simultaneously, or sequentially. For a sequential determination, the number of the diagram components exceeds the number of the base model components by a factor of >2. Another case examined was the simultaneous determination of the gradient components by the sensitivity points' method. A transfer function and a block diagram for this particular case were developed. As a supplement, an automatic optimization model, including the base model,

Card 1/2

Card 2/2

KOKOULIN, Igor' Ivanovich; PANOV, V.I., inzhener; redaktor; KANDYKIN, [illegible], tekhnicheskiy redaktor

[Shortening idle periods of railroad cars in all types of operations; initiative of 22 Donets Basin stations] Sokrashchenie prostoia vagonov pod vsemi vidami operatsii; pochin 22 stantsii donbassa. Moskva, Gos. transportnoe zhel-dor. izd-vo, 1955. 30 p. (MLRA 8:6)
(Railroads--Cars)

KOKOULIN, I.I.

Good needs. Put' i put. khoz. no.2:36-37 F '58. (MIRA 11:3)
(Railroads--Employees--Education and training)
(Railroads--Crossings)

LEONOVICH, Boris Nikolayevich; KALAYDA, Ivan Stepanovich;
KOKOULIN, I.I., red.

[Depot of advanced technology; from the experience of the Grebenka Locomotive Depot of the Southern Railroad] Depo peredovoi tekhnologii; iz opyta lokomotivnogo depo Grebenka IUzhnoi dorogi. Moskva, Transport, 1964. 29 p. (MIRA 17:12)

1. Chlen Nauchno-tekhnicheskogo obshchestva zheleznodorozhnogo transporta, komandir depo Grebenka Yuzhnoy dorogi (for Leonovich, Kalayda).

SMETANIN, Aleksandr Ivanovich; KOKOULIN, I.I., red.; USENKO, L.A., tekhn. red.

[Railroad stations of communist labor] Zheleznodorozhnye stantsii kommunisticheskogo truda. Moskva, Vses.izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 69 p. (MIRA 14:12)
(Railroads—Stations)

IVANNIKOV, Granit Savvich; KOKOULIN, Igor' Ivanovich; VASIL'YEVA, N.N., tekhn. red.

[Efficient utilization of switching locomotives; experience of the Perovo Station]Effektivnoe ispol'zovanie manevrovykh lokomotivov; opyt stantsii Perovo. Moskva, Transzheldorizdat, 1962. 25 p. (MIRA 15:10)
(Perovo—Railroads—Hump yards) (Locomotives)

KOKOULIN, I.I., inzh., red.; VOROB'YEVA, L.V., tekhn. red.

[Experts in their profession]Mastera svoego dela. Moskva, Transzheldorizdat, 1962. 127 p. (MIRA 15:11)
(Railroads--Employees)

GULEV, Yakov Fedorovich, kand. tekhn. nauk; KANDIL'YAN, Akhmetsum Agasiyevich, insh.; GOLUBYATNIKOVA, L.A., insh., retsenzent; KOKOULIN, I.I., insh., red.; VOROTNIKOVA, L.F., tekhn. red.

[New developments in the freight operations of railroad stations and enterprises; work experience of the Krasnoarmeyskoye, Rodinskaya and Dobropol'ye Stations] Novoe v gruzovoi rabote stantsii i predpriiatii; opyt raboty stantsii Krasnoarmeiskoe, Rodinskaia i Dobropol'e. Moskva, Transzheldorizdat, 1963. 53 p. (MIRA 16:4)

(Railroads--Freight) (Railroads--Management)

KOKOULIN, P. P. DECEASED 1963/1

c. 1961

HYDROMETEOROLOGY

see: ILC

L 23245-66 EWT(1) LIP(c)

ACC NR: AP6009437 SOURCE CODE: UR/0075/66/021/003/0334/0337

AUTHOR: Kokoulin, V. D.

ORG: none

TITLE: Radioluminescent analysis. Report 2. Radioluminescent determination of gases.

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 3, 1966, 334-337

TOPIC TAGS: radioluminescence, oxygen, carbon monoxide, sulfur, nitric oxide, chlorine, hydrogen sulfide, luminophor, argon, nitrogen

ABSTRACT: Extinction of radioluminescence by oxygen, carbon monoxide, sulphur dioxide, nitric oxide, chlorine, and hydrogen sulfide for certain liquid luminophores has been investigated. The possibility of using extinction for qualitative determination of gases ranging from 0.05 to 3% oxygen, less than 0.01 mg chlorine, and less than 0.01 µg of nitric oxide in various gases (argon, nitrogen, hydrogen, carbon dioxide, and butanepropane) has been shown. Orig. art. has: 6 figures and 2 tables. [NT]
[Based on author's abstract]

UDC: 543.27

SUB CODE: 07/ SUBM DATE: 13Jul64/ ORIG REF: 001/ OTH REF: 003/

Card 1/1

L 23140-66 EWT(l)/EWT(m)/EWP(j) (A) IJP(c) RM

ACC NR: AP6006942 SOURCE CODE: UR/0075/66/021/002/0203/0209

22
B

AUTHOR: Kokoulin, V. G.

ORG: none

TITLE: Radioluminescent analysis. Report No. 1. Radioluminescent determination of certain organic substances

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 2, 1966, 203-209

TOPIC TAGS: radioluminescence, luminescence quenching, quantitative analysis

ABSTRACT: The proposed method of radioluminescent analysis is based on radioluminescence quenching by substances introduced into a liquid luminophor. In order to find out whether organic substances can be determined by this method, quenching of the radioluminescence of p-terphenyl, diphenyloxazole, and 1-naphthylamine solutions by halo derivatives of benzene, and that of 1-naphthylamine solutions by benzoic and phthalic acids, was investigated. Two types of radioluminescence quenching, one physical and the other chemical, were observed. The magnitude of the physical type of radioluminescence quenching is 100 to 1000 times that of fluorescence

UDC: 543.70 : 543.80

2

Card 1/2

L 23140-66

ACC NR: AP6006942

quenching, and the accuracy of measurements is also considerably increased owing to the fact that fluorescence quenching is caused by the concentration quenching of the luminescent substance. The compounds bromoform, bromonaphthalene, chloroform, carbon tetrachloride, acetone, hydroquinone, diethylamine, hydrogen sulfide, nitrotoluene, styrene, vinyltoluene, etc. were quantitatively determined by the radioluminescent method in concentrations of less than 10^{-2} wt % in various solvents: benzene, toluene, xylene, dioxane, phenylcyclohexane, benzene-ethanol, etc. It was found that quenching by halo derivatives of benzene varies as the square of the ionic radius of the quencher. Orig. art. has: 8 figures.

SUB CODE: 07/ SUBM DATE: 13Jul64/ ORIG REF: 003/ OTH REF: 003

Card 2/2

L 15533-63 EWP(j)/EWT(m)/BDS ASD Pc-4 RM

ACCESSION NR: AP3004915 S/0120/63/000/004/0183/0184

AUTHOR: Kokoulin, V. G.

51

TITLE: Manufacturing filamentary scintillators

SOURCE: Pribory*i tekhnika eksperimenta, no. 4, 1963, 183-184

TOPIC TAGS: scintillator, filamentary scintillator

ABSTRACT: A simple method is described of manufacturing scintillating filament from polystyrene, 2% p-terphenyl, 0.02% POPOP. The filament is extruded by nitrogen pressure (10-15 atm) from a die plate which constitutes a part of a thermostatically heated (at 250 C) metal container. Depending on the controllable speed of a take-up reel, the filament diameter is 0.2-3 mm ± 10%. Productivity: 600-800 m filament in 8 hrs. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 20Sep62 DATE ACQ: 28Aug63 ENCL: 00

SUB CODE: IE NO REF SOV: 000 OTHER: 003

Card 1/1

L 40811-65 EWG(j)/EWT(m)/EPF(c)/EWP(j)/EWA(h)/EWA(c)/EWA(j) Pc-4/Pr-4/Pab

ACCESSION NR: AP5007671 30 S/0032/65/031/003/0290/0292

30
B

AUTHOR: Kokoulin, V. G.

TITLE: Radioluminescent determination of styrene in polystyrene and in a plastic scintillator

SOURCE: Zavodskaya laboratoriya, v. 31, no. 3, 1965, 290-292

TOPIC TAGS: luminescence, scintillator, styrene, polystyrene

ABSTRACT: The author describes a technique for radioluminescent determination

[illegible] styrene [illegible]

[illegible] plastic scintillator or the polystyrene [illegible] dissolved in 5 ml of toluene. To this solution are added 0.02% n-terphenyl and 0.0004% diphenyl-[illegible]. The radioluminescent yield is measured, and, from the

Card 1/2

L 40311-65

ACCESSION NR: AP5007671 0

calibrated graph, the percentage content of styrene is determined. The analysis takes 10-15 minutes, and the precision of determination is ± 2%. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: OC, OP

NO REF SOV: 001 OTHER: 001

Card 2/2

ACC NR: AT6023739 (//) SOURCE CODE: UR/3116/66/269/000/0079/0095

AUTHOR: Andreyeva, N. N.; Kokoulin, V. I.

ORG: none

TITLE: Actinometric observations in the Arctic Seas during the International Geophysical Year (1957-59)

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Trudy, v. 269, 1966. Okeanograficheskiye i gidrometeorologicheskiye issledovaniya Arkticheskikh morey (Oceanographic and hydrometeorological studies of Arctic Seas), 79-95

TOPIC TAGS: actinometry, solar radiation, optic albedo

ABSTRACT: The author surveys actinometric data collected during the International Geophysical Year and supplemented by occasional observations since 1940. The new data differ somewhat from the older due partly to the lack of standardization of observations. For example, actinometrist S. N. Makarov found that the albedo of the sun measured from the ship's bow is twice that measured amidships where the reflection due to the ship's white paint is greater. Much remains to be done in this respect. Heat imparted by solar radiation to the surface of the sea varies with the sun's altitude above the horizon and with the transparency of the atmosphere. The relationship between ra-

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ACC NR: AT6020739

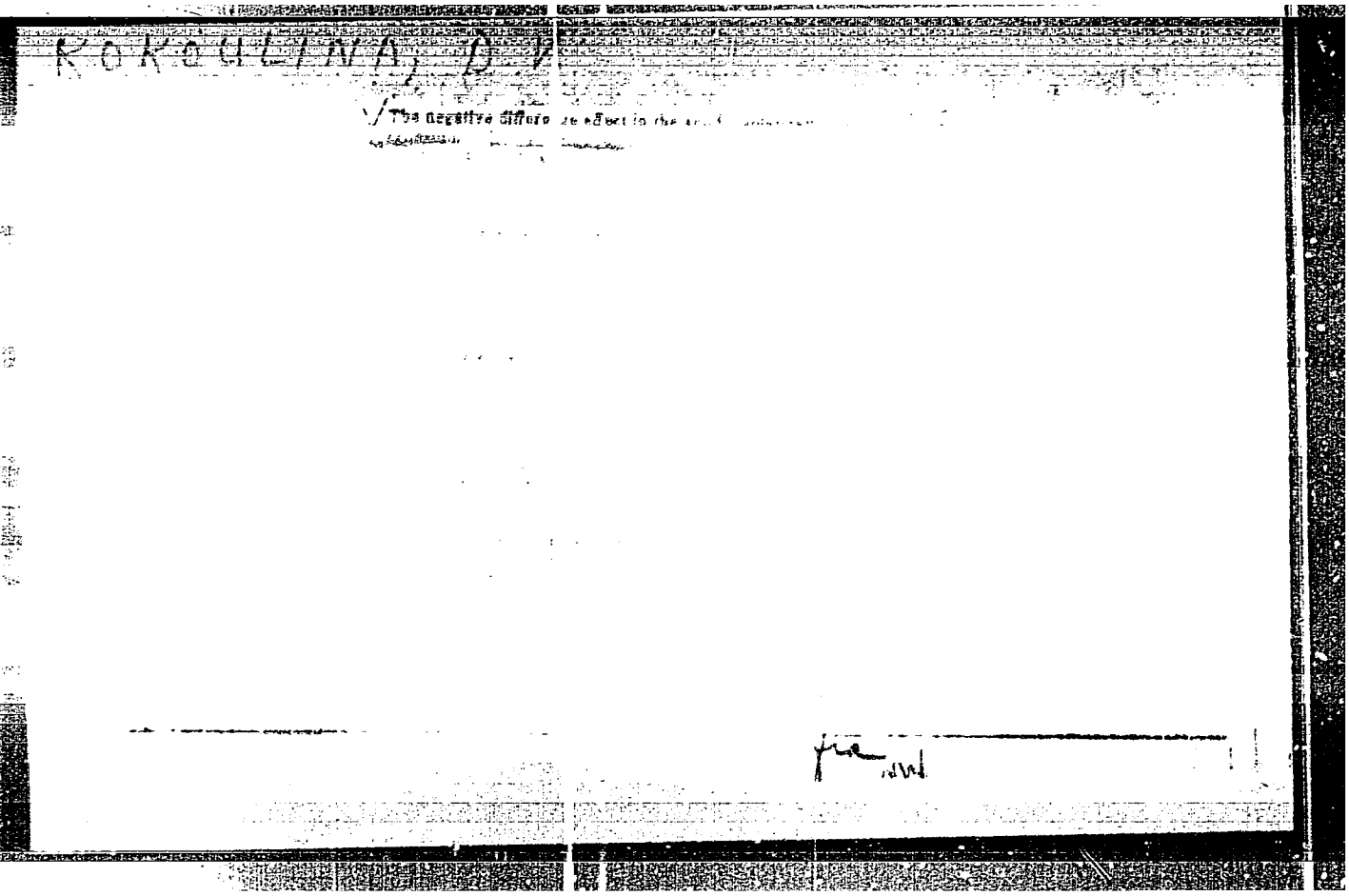
diation and the altitude is fairly constant for all the investigated seas on cloudy days. On clear days it varies. Radiation intensity varies on clear days considerably more than on cloudy ones. The largest albedos were measured on the Chukchi and Greenland Seas, the smallest--on the Kara Sea. The balance of long wave radiation on land and on sea appears to be nearly the same. Radiation data for various altitudes of the sun and for various hours and dates are presented in tables. Orig. art. has: 12 tables, 4 figures.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 022/ OTH REF: 001

Card 2/2

KOKOULIN, V.R., brigadir

Mechanized cable distributor. Mekh.stroi. 19 no.12:21-22 D '62.
(MIRA 15:12)
(Wire rope)



KOKOULINA, D.V., Cand Chem Sci--(diss) "~~Study~~ Formation of monovalent magnesium and liberation of hydrogen on the magnesium anode." Mos, 1958. 8 pp (Acad Sci USSR. Inst of Physical Chemistry); ~~[illegible]~~ 150 copies (KL,25-58, 103)

-32-

SOV/20-120-3-34/67

AUTHORS: Kabanov, B. N., Kokoulina, D. V.

TITLE: On the Mechanism of the Dissolution of Magnesium on the Anode (O mekhanizme anodnogo rastvoreniya magniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 3, pp.558-561 (USSR)

ABSTRACT: The authors investigate the rules governing the oxidation of monovalent magnesium. If the velocity i_2 of the process taking place on the anode $Mg \rightarrow Mg^{+}$ is determined by the slowing down of the electron transition (on which occasion hydration increases), the formula

$$i_2 = k_2 [Mg^{+}]_s \exp \frac{\beta F \varphi}{RT}$$

can be written down. The value $\beta = 0{,}23$ is used. For the parallel process of diffusion transition of Mg^{+} from the electrode surface into the solution it holds that $i_3 = FD\, dc/dx = FD[Mg^{+}]_{x=0}/\delta = k_3[Mg^{+}]_s$, where k_3 depends on the velocity of mixing. The distribution of magnesium over the two processes $Mg_{adsorbed} \rightarrow Mg^{+} + \ominus$ and $Mg_{adsorbed} \rightarrow Mg^{+}_{dissolved}$ does not depend on the concentration of the

Card 1/3

monovalent magnesium on the surface, but only on the potential. On the other hand, the experiments carried out by the authors gave the following results: In the activated solutions: ($MgCl_2$, $MgBr_2$, $MgSO_4$) the potential of the dissolution of magnesium on the anode hardly depends on the current density at all. With a decrease of current density on the anode the passivity of the magnesium increases. In the passivation of magnesium the velocity of the oxidation of the ions Mg^+ on the anode in the case of a constant electrode potential depends only on the change of $[Mg^+]_s$. This is true also for the diffusion of these ions from the electrode. The theoretical dependence of the valence n_1, which was found here, on the electrode potential φ gives an S-shaped curve which, on the whole, corresponds to the experimental curve. Thus, the velocity of the second stage of the oxidation of magnesium on the anode is probably determined by the velocity of electron transition. There are 1 figure and 5 references, 3 of which are Soviet.

On the Mechanism of the Dissolution of Magnesium on the Anode SOV/20-120-3-34/67

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR
(Institute of Physical Chemistry, AS USSR)

PRESENTED: January 15, 1958, by A. N. Frumkin, Member, Academy of Sciences, USSR

SUBMITTED: January 13, 1958

1. Magnesium--Oxidation 2. Magnesium--Electron transitions
3. Anodes (Electrolytic cell)--Electrochemistry

Card 3/3

81203

S/020/60/132/04/40/064
B004/B007

5.4500(B)
5.4600

AUTHORS: Kokoulina, D. V., Dolin, P. I., Frumkin, A. N., Academician

TITLE: The Effect of Radiation Upon the Potential of the Platinum Electrode in a Sulfuric Acid Solution

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 4, pp.880-883

TEXT: V. I. Veselovskiy and Ts. I. Zalkind (Ref. 1) were the first to find that in the irradiation of an H_2SO_4 solution with nitrogen, a potential forms on the Pt electrode, which is close to the potential of the reversible hydrogen electrode. It was the aim of the present paper to explain the conditions under which the H potential and the potential close to 0.85 v form on the Pt electrode in irradiation, and to clarify the part played in this process by molecular and radical products. The experiments were carried out by X-ray irradiation. Two forms of glass cells (Fig. 1) were used. Cell I had a large gas space into which the hydrogen formed was able to escape, whereas in the narrow cell II the escaping of H_2 was

Card 1/4

The Effect of Radiation Upon the Potential of the Platinum Electrode in a Sulfuric Acid Solution

S/020/60/132/04/40/064
B004/B007

rendered difficult. During the experiment the solution could be changed by supplies from a storage vessel in which the solution was saturated with H_2 and N_2. Several experiments were also made while the solution passed through a glass tube. Fig. 2 shows the dependence of the potential of the Pt electrode (P_{Pt}) on the duration of irradiation of different intensities. In solutions saturated with N, P_{Pt} at first shifts towards the H potential, after which it assumes a constant value of about 0.85 v, irrespective of the irradiation intensity. The authors draw the conclusion that this P_{Pt} corresponds to the concentration of molecular H_2 formed by radiolysis, and substantiate this opinion by the following observations: 1) By interruption of the irradiation before the maximum negative potential has been attained, P_{Pt} at first shifts further towards the value of the H electrode, after which, according to whether cell I or II had been used, it assumes the value 0.85 v more quickly or more slowly. 2) The addition of an active radical acceptor (KBr) changes nothing in the dependence of P_{Pt} on the radiation dose. 3) During

The Effect of Radiation Upon the Potential of the Platinum Electrode in a Sulfuric Acid Solution

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irradiation in a flowing solution, no shifting towards negative values occurs. If, however, the passage is blocked, P_{Pt} changes in the same manner as in cell II (Fig. 2). 4) In cell II there is an increase to 0.85 v only in the case of a larger dose than in cell I, from which H_2 is able to escape. In full agreement with S. D. Levina and T. V. Kalish the authors arrive at the conclusion that atomic hydrogen plays no essential part in this process. The potential of 0.85 v corresponds to a stable state of the platinum electrode in an irradiated sulfuric acid solution. The shift of P_{Pt} in the positive direction was caused by the concentration of H_2O_2 in the solution (Fig. 4). The potential of the pt electrode in 0.8 N H_2SO_4 is due to molecular products (H_2 and H_2O_2) forming in the solution during irradiation. Here, the radical products play no noticeable part. They are apparently for the greater part recombined in the solution and on the surface of the electrode. There are 4 figures and 7 references: 4 Soviet and 3 British.

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The Effect of Radiation Upon the Potential of the Platinum Electrode in a Sulfuric Acid Solution

S/020/60/132/04/40/064
B004/B007

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences, USSR)

SUBMITTED: February 26, 1960

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86781

S/076/60/034/011/009/024
B004/B064

26.1610

AUTHORS: Kokoulina, D. V. and Kabanov, B. N. (Moscow)

TITLE: Formation of Monovalent Magnesium and Passivation of the Magnesium Anode

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 11, pp. 2469-2479

TEXT: In the introduction, the authors discuss the characteristics of the anodic dissolution of magnesium mentioned in publications. The principal purpose of the present work was to clarify the mechanism of this dissolution and study the effect of the potential and the degree of oxidation of the electrode surface upon the course of dissolution and the evolution of hydrogen. The following problems were studied: 1) polarization of the magnesium anode in 1 N solutions of $MgCl_2$, $MgSO_4$, $KClO_3$, K_2CrO_4; change in time of the anode potential in 1 N $MgSO_4$, 1N $MgSO_4$+0.05 M K_2CrO_4; 3) capacity of the double layer of the magnesium electrode in $MgCl_2$; $MgBr_2$, $MgSO_4$, $MgSO_4$+K_2CrO_4; evolution of hydrogen on the magnesium electrode

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Formation of Monovalent Magnesium and Passivation of the Magnesium Anode

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in solutions of $MgSO_4$, $MgBr_2$, $MgCl_2$, $CaCl_2$, NH_4Cl, HCl, $KClO_3$ at constant and pulsating currents of between 6 and 100,000 cps; 5) real valence n_i of the magnesium ions forming on the anode; 6) formation of Mg(I) ions and their detection. The results led to the following conclusions: Primarily monovalent Mg ions form at the anode which, however, enter immediately into reaction with water:

$$Mg \xrightarrow[1]{-e} Mg(I)_{ads} \xrightarrow[2]{-e} Mg^{2+}$$

$$Mg(I)_{ads} \xrightarrow{3} Mg(I)+H_2O \rightarrow Mg^{2+} + 0.5H_2 + OH^- .$$

The increasing evolution of hydrogen at the anode with an increase of current density is not due to the accelerated self-dissolution of the anode, but to the intensification of reaction 3. The oxidation of Mg(I) to Mg^{2+} at the anode is facilitated by an increasing potential. The effect of the composition of the solution upon the relative rates of oxidation at the electrode and in the solution manifests itself by a shift of the anode potential in the positive direction while the anode is passivated. All these relations may be expressed by the following

Formation of Monovalent Magnesium and Passivation of the Magnesium Anode

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equations: $v = v_1 + v_2 = 6.95i_a(2 - n_i)/n_i + v_o\exp(-\alpha_1\Delta_j F/RT)$ (1); or $v = 6.95i_a(2 - n_i)/n_i + v_o^2/6.95i_a' \approx 6.95i_a(2 - n_i)/n_i + v_o^2/(v_o+6.95\ i_a)$ $cm^3/cm^2 \cdot min$ (1a). v_1 is the rate of oxidation of Mg(I) to Mg^{2+}; v_2 is the rate of hydrogen evolution at the cathode; i_a is the current density at the anode; v_o is the rate of hydrogen evolution without polarization; α_1 is a coefficient characterizing the cathodic process of hydrogen evolution; Δ_j is the potential shift in the positive direction; i_a' is the actual rate of the anodic process. There are 7 figures, 1 table, and 18 references: 8 Soviet, 8 US, 1 British, 1 Canadian, 5 German, and 1 Italian.

ASSOCIATION: Akademiya nauk SSSR, Institut elektrokhimii (Academy of Sciences of the USSR, Institute of Electrochemistry)

SUBMITTED: February 14, 1959

Card 3/3

DOLIN, P.I.; KOKOULINA, D.V.; BRUSENTSEVA, S.A.; KABAKCHI, S.A.

Effect of X rays on the electrochemical oxidation of formic acid on Pt anode. Dokl. AN SSSR 144 no.5:1081-1084 Je '62. (MIRA 15:6)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom A.N.Frumkinym.

(Formic acid) (Oxidation, Electrolytic) (X rays)

BRUSENTSEVA, S.A.; KOKOULINA, D.V.; DOLIN, P.I.

Effect of X rays on the electrochemical oxidation of ethyl alcohol on a Pt-anode. Dokl. AN SSSR 147 no.3:649-652 N '62.
(MIRA 15:12)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom A.N. Frumkinym.

(Ethyl alcohol) (Electrochemistry) (X rays)

BOGRACHEV, A.M.; DOLIN, P.I.; KOKOULINA, D.V.

Effect of preliminary proton irradiation on the function of a porous nickel electrode. Zhur. fiz. khim. 39 no.2:497-498 F '65. (MIRA 18:4)

1. Institut elektrokhimii AN SSSR.

KOKOUROV, V.D.

3(6,10); 9(6) PHASE I BOOK EXPLOITATION SOV/1924

Akademiya nauk SSSR. Ural'skiy filial. Gorno-geologicheskiy institut.

Geofizicheskiy sbornik, no. 2. (Collected Papers on Geophysics, Nr. 2.) Sverdlovsk, 1957. 207 p. Issued also as Its Trudy, vyp. 30 Errata slip inserted. 2,400 copies printed.

Resp. Ed.: Yu.P. Bulashevich, Doctor of Physical and Mathematical Sciences; Ed.: I.M. Demin; Tech. Ed.: L.A. Izmodenova.

PURPOSE: This collection of articles is intended for field geophysicists and exploration party leaders.

COVERAGE: These articles discuss many new techniques and some theoretical considerations involved in gravitational, magnetic, seismic, electrical and gamma radiation exploration methods. In 4 articles V.N. Ponomarev discusses various aspects of magnetometry; N.I. Khalevin - the study of elastic wave propagation; and G.M. Voskoboynikov - gamma radiation. Extensive bibliographies accompany each articles.

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TABLE OF CONTENTS:

Collected Papers (Cont.) SOV/1924

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AVAILABLE: Library of Congress

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PHASE I BOOK EXPLOITATION SOV/5213

Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po provedeniyu Mezhdunarodnogo geofizicheskogo goda. V. razdel programmy MGG: Ionosfera.

Issledovaniya neodnorodnostey v ionosfere (Investigations of Inhomogeneities in the Ionosphere) Moscow, Izd-vo AN SSSR, 1960. 96 p. 2,000 copies printed. (Series: [illegible] Sbornik statey, No. 4)

Resp. Eds.: Yu.V. Kushnerevskiy and S.F. Mirkotan, Candidate of Physics and Mathematics; Ed.: Ye.P. Shchukina; Tech. Ed.: O.M. Gus'kova.

PURPOSE: This publication is intended for geophysicists. It will be of particular interest to researchers specializing in studies of the structure of the ionosphere and its effect on radio wave propagation

COVERAGE: This collection of articles on the properties of ionospheric inhomogeneities was published by the IGY Committee of the AS USSR, as the fourth serial contribution to the fifth section of the IGY program (the ionosphere). Individual articles deal with various types of ionospheric inhomogeneities and their drifts, a study of the state of polarization, and a method of correlation analysis of the measurements of inhomogeneities and drifts in the ionosphere. No personalities are mentioned. References follow individual articles. A brief English abstract is appended to each article.

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AVAILABLE: Library of Congress

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JZ/dwm/gmp
7-3-61

(6)

S/169/61/000/006/039/039
A005/A130

AUTHORS: Kokourov, V.D., Kazimirovskiy, E.S.

TITLE: The drift of small-scale inhomogeneities in the ionosphere (from measurements in Irkutsk)

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 6, 1961, 31, abstract 6G246. (V sb.: Issled. neodnorodnostey v ionosfere. No. 4. Moscow, AN SSSR, 1960, 75-82 (English summary))

TEXT: The authors briefly describe an experimental set-up for investigation of the drift of small-scale inhomogeneities in the ionosphere by the method of spaced reception with small basis. Results are presented of measurements of drift velocity in the E- and F-regions of the ionosphere during from April 1958 to October 1959. The seasonal variation of the magnitude of velocity and the direction of drift are described for the E- and F2-layers. The results obtained are compared with data from other stations of the USSR (Moscow, Ashkhabad, Tomsk and Khar'kov). The authors

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The drift of small-scale inhomogeneities ... S/169/61/000/006/039/039
A005/A130

conclude that, in addition to local peculiarities of drift of inhomogeneities there exists a general system of circulation in the ionosphere.

Authors' summary

[Abstractor's note: Complete translation.]

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S/169/62/000/005/079/093
D228/D307

9.9100

AUTHORS: Kazimirovskiy, E. S., Kokourov, V. D., and Polyakov, V. M.

TITLE: Some results of measuring the absorption of radiowaves in the ionosphere according to observations at Irkutsk

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1962, 24-25, abstract 5G176 (V sb. Ionosfern. issledovaniya, no.6, AN SSSR, 1961, 52-57)

TEXT: The procedure and the results are described for the measurement of radiowave absorption in the ionosphere in observations at Irkutsk that were started in 1950. The frequencies of collisions of electrons with heavy particles (ν) was estimated from measurements in the F2-layer (March-July 1950 and October 1953-June 1954). The results are adduced on graphs of the diurnal variations of ν. These data were used to determine the gas temperature (T) from the formula:

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$$\bar{\nu}\,[\Delta N_e/N_e - \Delta\bar{\nu}/\bar{\nu}]/\Delta\bar{\nu} = \Psi(T,\ h,\ N_e)$$

(see RZhGeofiz, no. 9, 1956, 27402). The results of absorption measurements on the frequency 2,2 Mc/s during the IGY are described. The seasonal variation of the median absorption magnitude (L) on this frequency could not be successfully ascertained, since on these frequencies the absorption is mainly governed by the solar activity. A correlation, which is weaker in winter months, exists between L and f_{min}. Absorption measurements at РМД(RMD) allowed the absorption's diurnal variation, which has a high correlation with f_{min} and the sun's zenith angle, to be studied. [Abstracter's note: Depending on the meaning of "RMD", the preceding word could also be rendered as "on" or "in".]. The work's results confirm that f_{min} can serve as a sufficiently reliable criterion for absorption in a non-deflecting region. For the comparability of the results of the network of stations it is necessary to measure f_{min}

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Some results of ... S/169/62/000/005/079/093
D228/D307

with invariable and standard equipment parameters. [Abstracter's note: Complete translation.]

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S/203/61/001/005/016/028
A006/A101

AUTHORS: Kazimirovskiy, E. S., Kokourov, V. D.

TITLE: Investigating the non-homogeneous structure of the ionosphere over Irkutsk during the IGY

PERIODICAL: Geomagnetizm i aeronomiya, v. 1, no. 5,1961, 740 - 749

TEXT: The lacking of definite conclusions on the nature, dimensions, shape and other factors of regular motions in the ionosphere requires intensified studies on the subject. An analysis was made of results of measurements carried out over Irkutsk during the IGY, for the purpose of determining mean diurnal and seasonal regularities in the changes of velocity and direction of drifts, the connection of drift and geomagnetic activity and of evaluating the dimensions of non-homogeneities of the E and F2 layer. A noticeable relationship of the drift velocity and magnetic activity was not observed; only a slight increase of the mean velocity was noted with a greater K-index; this correlation was more distinct in the F2 layer. This confirms the concept that drifts in the F layer are more affected by the geomagnetic field than in the E layer. The dimensions of non-homogeneities in the E layer were 200 - 400 m and in the F2 layer 1,000 - 1,600 m and

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more frequently 200 - 500 m. These data are in agreement with theoretical values. A comparison with the characteristics of drifts over other points of the globe proves the existence of a united system of motion of non-homogeneities in the ionosphere. The author thanks V. I. Makrygina, N. D. Sharonova and N. T. Tokareva for their assistance. There are 7 figures, 2 tables and 49 references: 12 Soviet-bloc and 37 non-Soviet-bloc.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i resprostraneniya radiovoln SO AN SSSR (Institute of Terrestrial Magnetism, Ionosphere and Propagation of Radiowaves, AS USSR)

SUBMITTED: June 19, 1961

S/058/62/000/006/113/136
A062/A101

9.9100

AUTHORS: Kazimirovskiy, E. S., Kokourov, V. D., Polyakov, V. M.

TITLE: Some results of measurements of radio wave absorption in the ionosphere effected at Irkutsk

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1962, 27 - 28, abstract 6Zh185 (V sb. "Ionosfern. issledovaniya. no. 6," Moscow, AN SSSR, 1961, 52 - 57, English summary)

TEXT: Results of measurements of radio wave absorption effected at Irkutsk from March to June 1950 and from October to June 1954 are reported. The absorption was measured on 2.2 and 2.6 Mc frequencies by the pulse probing method on a specially prepared experimental measuring installation. In the processing, use was made of reflections of first and second order for night time, and for day time - reflections of first order with use of the stationary installation. An evaluation is made of the errors due to underestimating the coefficient of the radio wave reflection from the Earth and to absorption without deflection in the lower regions. Average daily values, for one to two months, of the dependence of

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S/058/62/000/006/113/136
A062/A101

Some results of measurements of...

the effective number of collisions are given. On the basis of the data obtained on the number of collisions, the temperature of the F_2 ionospheric layer is calculated. Evidence is made that the effective number of collisions is controlled, to a greater extent, by the daily behavior of ionization than by the temperature change as it was assumed heretofore. Investigation of seasonal variations of absorption has shown a fair correlation between the absorption and the solar activity index. The daily behavior of absorption displays a great likeness to the behavior of f_{min} and $\cos\chi$.

Yu. Korobkov

[Abstracter's note: Complete translation]

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L 14736-63 EWT(1)/BDS/ESC-2/ES(v) AFFTC/ASD/AFMDC/ESD-3/
APGC Pe-4/Pi-4/Pa-4/Pq-4 PT-2/GW

ACCESSION NR: AP3007422 S/0203/63/003/005/0995/0996

AUTHOR: Kokourov, V. D.

TITLE: On the correlations between some ionospheric characteristics and geomagnetic activity

SOURCE: Geomagnetism i aeronomiya, v. 3, no. 5, 1963, 995-996

TOPIC TAGS: radar signal, ionospheric turbidity, ionospheric absorption, Irkutsk observatory, magneto ionospheric disturbance, K-index, E-layer, F-layer, sporadic layer

ABSTRACT: Correlations between the mean amplitude of reflected radar signals $\bar{R}$, the turbidity of the ionosphere β, and ionospheric absorption L are analyzed on the basis of data obtained at a frequency of 2.2 Mc by the Observatoriya Irkutsk (Irkutsk Observatory) in 1959. The turbidity of the ionosphere is determined by the formula $\beta = f(R^2/\bar{R}^2)$, where R is the instant amplitude of reflected radar signals, and presented graphically. The magneto-ionospheric disturbances are evaluated by the local K index. Data for each

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regular E layer are shown in Fig. 1 of the Enclosure. K diminishes 20 times depending upon the index K, β decreases from 2.0 to 0.6 as the K index increases, and L increases in a quiet magnetic field. The ionization of the E_s layer does not show a regular rate of change. Fig. 2 shows the reflection from the F layer, which is more complicated. The absorption in the sporadic layer E_s does not change with a change in the K index, and the turbidity does not depend upon the degree of disturbance. The author concludes that no dependence exists in the F layer between the reflection amplitude and ionospheric absorption on the one hand and the ionization of the sporadic E_s layer on the other. "The author thanks a group of colleagues who processed the experimental data." Orig. art. has: 2 figures and 2 formulas.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln SO AN SSSR (Institute of Terrestrial Magnetism, Ionosphere, and Propagation of Radio Waves, SO, AN SSSR)

ACCESSION NR: AP4040716 S/0203/64/004/003/0598/0600

AUTHOR: Kokourov, V. D.

TITLE: The phenomenon of scattered reflections as an experimental basis for studying inhomogeneous structure of the ionosphere

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 3, 1964, 598-600

TOPIC TAGS: ionosphere, light reflection, light diffusion, radio wave absorption

ABSTRACT: In view of work on scattered (diffuse) reflection, the author considers the possibility of using this to study the inhomogeneous structure of the ionosphere (movements and drifts in this zone) during diffuse reflection. Such a study would include: 1) observation of the form of the reflected signal with simultaneous observation of radio-wave absorption in the ionosphere, 2) observation of the nature of the fading reflected signal on closely spaced detectors, and 3) setting up a simplified but adequate system of observations to obtain sufficient statistical data. The types of data that may be obtained on inhomogeneous structure in the ionosphere are: 1) patterns of movement in the ionosphere just before appearance and just after disappearance of the diffuse state, 2) patterns of fading reflected signals at the same moments, 3) localization of the focus of these phenomena and determination of their rate and direction, 4) dynamical pattern of development

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(type and rate of development, change, and loss), 5) movement patterns of inhomogeneities of different localizations, 6) mechanism by which diffuse reflections develop, 7) possible prediction of diffuse state in the ionosphere. This type of investigation demands preliminary study of daily and seasonal variations in diffuse reflection and of their relation to solar and terrestrial activity. A well-defined daily behavior has already been observed. The maximum appears in the post-midnight hours (3-5:00 a.m.). In years of minimum solar activity, the clearest maximum of diffuse reflection occurs in winter months (Oct-Jan). An inverse relation is observed between solar activity and scattering probability. "The author considers it his duty to thank V. M. Polyakov and E. S. Kazimirovskiy for valuable remarks given during discussion of this work. He also thanks the workers under the direction of O. M. Obolkina who made the computations and the graphs." Orig. art. has: 2 figures.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery* i rasprostraneniya radiovoln SO AN SSSR (Institute of Terrestrial Magnetism, the Ionosphere, and Propagation of Radio Waves, SO AN SSSR)

SUBMITTED: 25Jan64 ENCL: 00

SUB CODE: ES NO REF SOV: 004 OTHER: 028

L 21803-65 EWT(d)/EWT(l)/EEC(k)-2/EWG(v)/FSC/EEC-4/EEC(t)/EWA(h) Pn-4/ Po-4/Pe-5/Pq-4/Pg-4/Pae-2/Pt-10/Peb/Pi-4/PI-4 SSD(c)/ASD(f)-3/RAEM(a)/ESD(c)/ ESD(t) RB/GW/WS

ACCESSION NR: AP5000521 S/0203/64/004/006/1064/1071

AUTHOR: Kokourov, V. D.

TITLE: Analyzing the fading of a reflected signal

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 6, 1964, 1064-1071

TOPIC TAGS: reflected signal, ionosphere, sliding characteristic, energy redistribution, signal energy, radiowave drift, signal fading, random vibration, harmonic vibration

ABSTRACT: A statistical analysis was made of the fading process of a signal reflected from the ionosphere. Discrete frequency components were found in the amplitude variations of a reflected signal, as well as the frequency redistribution of the signal energy with time. It is emphasized in this paper that the laws governing amplitude distribution are varied and do not correspond to the theoretical premises. The speed and duration of the fading processes change within a wide range, reveal daily and seasonal patterns and a very definite correlation with magnetic activity. Mathematically correct methods of analyzing the fading process are still not available, nor have the objective characteristics of that process been determined or proof provided to show whether it is a

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ACCESSION NR: AP5000521

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stationary, non-stationary or random process. The results achieved so far are preliminary, and a further study of the signal-fading process should be made. "The author expresses his gratitude to V. M. Polyakov, E. S. Kazimirovsky and G. V. Kuklin for their valuable comments, and to the group of scientists under L. I. Prokopchuk, N. A. Chernobrovkina and N. D. Sharonova for their calculations and graphic work. Thanks are also due to Yu. V. Kushnerevskiy and Ye. S. Zavarnaya for supplying the primary materials." Orig. art. has: 7 formulas and 5 figures.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln Sibirskogo otdeleniya AN SSSR (Institute of Terrestrial Magnetism, the Ionosphere and Radiowave Propagation, Siberian Branch of the AN SSSR)

SUBMITTED: 24Feb64 ENCL: 00 SUB CODE: EC, ES

NO REF SOV: 011 OTHER: 009

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L 43717-66 EWT(1)/ECC GW
ACC NR: AT6023729 (N) SOURCE CODE: UR/2831/65/000/014/0077/0085

AUTHOR: Kokourov, V. D.

35
B+L

ORG: none

TITLE: The relationship between movements in the ionosphere and magnetic activity

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. V razdel programmy MGG: Ionosfera. Sbornik statey, no. 14, 1965. Ionosfernyye issledovaniya, 77-85

TOPIC TAGS: atmospheric ionization, geomagnetic disturbance, F layer, E layer, D layer

ABSTRACT: A brief survey is made of papers dealing with the relationships between parameters of small-scale ionization irregularities in the ionosphere and geomagnetic activity. Results are presented from an analysis of the relation between drift rates of small-scale ionization irregularities in the F, E, and D regions of the ionosphere and geomagnetic activity evaluated by the local K-index separately by seasons (winter, spring, summer, fall), by hours of the day, by the most pronounced directions, and by magnetically quiet and magnetically disturbed days. No dependence of drift rate on the degree of disturbances was detected in any of these cases. A thorough statistical analysis of the observational materials of the world-wide network of stations during the IGY showed that a comparison of the drift rate with mag-

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netic activity evaluated by the local K-index does not permit establishing a distinct relation between these physical quantities, at least for low and middle latitudes. This fact, however, does not preclude a relation between the movements of plasma inhomogeneities of the ionosphere and the state of the geomagnetic field, but indicates that an analysis should be carried out by more precise methods and that attempts should continue to find correctly comparable parameters which would permit establishing and investigating such a relation. The study of the relation between the parameters of the geomagnetic field and the parameters of drift during periods of strong magnetic ionospheric disturbances is of great interest. A satisfactory procedure of observations during such periods and an appropriate method of comparison should be worked out. Orig. art. has: 3 tables and 4 figures.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 006

L 37648-66 EWT(1)/FCC GW

ACC NR: AP6018927 SOURCE CODE: UR/0203/66/006/003/0599/0600

46

AUTHOR: Kazimirovskiy, E. S.; Kokourov, V. D.; Chernobrovkina, N. A.

B

ORG: Institute of Earth Magnetism, Ionosphere and Propagation of Radio Waves SO AN SSSR (Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln SO AN SSSR)

TITLE: Angular spectrum of waves scattered by the ionosphere

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 3, 1966, 599-600

TOPIC TAGS: ionospheric scatter, angular distribution, radiosonde, reflected signal

ABSTRACT: Angular characteristics of scattered signals were investigated in Irkutsk in 1962-1964 on the basis of vertical radioprobing of the ionosphere. A formula developed by Briggs (1951) for the determination of θ_0, a cone of concentration of scattered energy, was used. The formula is as follows:

$$N = (2v/\lambda)\sin\vartheta_0/2,$$

where N is the frequency of fading of a reflected signal, v is the drift velocity of inhomogeneities, λ is the working wavelength of a probing pulse. 300 observations of reflections from the F region at $2.25 \cdot 10^6$ cps were made during the autumn-winter period from 1800 to 0800 hr. The velocity of horizontal drift was evaluated using a meth-

UDC: 550.388.2

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ACC NR: AP6018927 O

od developed by Kazimirovskiy and Kokourov (1961). The data show that the widths of distribution of angular spectra obey the Rayleigh law, and that the most probable value of θ_0 is 7.5°. θ_0 angles over 24° are extremely rare. Orig. art. has: 1 figure, 1 formula. [14]

SUB CODE: 04,20/ SUBM DATE: 25Oct65/ ORIG REF: 003/ OTH REF: 004

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L 04069-67 EEC(k)-2/EWT(d)/EWT(1)/FCC GW/WS-2/GD

ACC NR: AT6026924 SOURCE CODE: UR/0000/66/000/000/0073/0077

AUTHOR: Kokourov, V. D.

ORG: none

TITLE: Analysis of the fading of a signal reflected from the ionosphere

SOURCE: AN SSSR. Kol'skiy filial. Polyarnyy geofizicheskiy institut. Vysokoshirotnyye issledovaniya v oblasti geomagnetizma i aeronomii (High-latitude studies in geomagnetism and aeronomy). Moscow, Izd-vo Nauka, 1966, 73-77

TOPIC TAGS: signal scattering, ionospheric absorption, ionospheric drift, spectral distribution, radio signal, radio echo, autocorrelation function

ABSTRACT: An attempt is made to estimate the character of the process of fading of a signal reflected from the ionosphere during short time intervals on the basis of analyzing the autocorrelation and structure functions and also the spectral density. The recordings of the process of fading of a signal reflected from the ionosphere which were obtained on a device for measuring the rate and direction of ionospheric drifts were subjected to analysis. The autocorrelation K (τ) and structure D (τ) functions were calculated for a large quantity of data obtained under various conditions: different seasons of the year, different times of the day,

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ACC NR: AT6026924

reflection from different regions of the ionosphere, etc. The duration of the recording was 5 min and the integration step was 1.25 sec. The investigation revealed that the curve describing the time changes of the amplitude of the reflected signal apparently always has a complex structure in the sense that it always contains quasi-periodic harmonic oscillations and random oscillations, the degree of predominance of one or the other being different under different conditions. The process of fading of a signal reflected from the ionosphere is a nonstationary random process. To elaborate this preliminary conclusion a spectral analysis of a large quantity of fading recordings are required. Orig. art. has: 1 formula and 4 figures.

SUB CODE: 04,17,20/ SUBM DATE: 21Apr66/ ORIG REF: 005/ OTH REF: 003

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ACC NR: AT6027214 SOURCE CODE: UR/0000/66/000/000/0075/0087

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AUTHOR: Kokourov, V. D.

ORG: none

TITLE: Spectral analysis of reflected-signal fading

SOURCE: AN SSSR. Sibirskoye otdeleniye. Sibirskiy institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln. Issledovaniya po geomagnetizmu i aeronomii (Studies in geomagnetism and aeronomy). Moscow, Izd-vo Nauka, 1966, 75-87

TOPIC TAGS: random process, spectrum analysis, radiowave propagation, statistic analysis

ABSTRACT: A brief review is given on some available data concerning the study of radio wave fading. It is pointed out that the conventional approach to such studies is based on information obtained from a statistical analysis of recorded time variations of the amplitude and phase of a signal received at one or several points on the earth's surface. This approach postulates that the initial process (i.e., the process of the variation of the (received) signal parameters with time) is a steady random process. An analysis of experimental data indicates that this process need not be steady even over short periods of time. Various criteria used to measure the rate of fading are examined. A statistical analysis of the fading of a signal reflected from

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the ionosphere is given and the time-variable spectral characteristics of radio wave fading are defined. It is shown that statistical processing of recorded fading data can provide the discrete frequency components in the variation of a reflected signal, and makes it possible to determine the behavior of these components in time and the redistribution of reflected-signal energy in the frequency spectrum. The need for reliable mathematical characteristics of radio-wave fading as a random process is noted, as is the need for reliable data on the dynamics of fading. The author considers it his pleasant duty to express his deep gratitude to V. M. Polyakov, E. S. Kazimirovskiy, and G. B. Kuklin for valuable comments during a discussion of this work, and also to the group of associates under the supervision of L. I. Prokopchuk, N. A. Chernobrovkina, and N. D. Sharonova who carried out a large amount of computational and graphic work. Orig. art. has: 9 formulas and 8 figures.

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ACC NR: AP6032697 SOURCE CODE: UR/0203/66/006/005/0933/0934

AUTHOR: Kokourov, V. D.

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TITLE: Experimental study of a pulse signal spectrum reflected from the ionosphere

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 5, 1966, 933-934

TOPIC TAGS: pulse signal, pulse shape, ionospheric propagation, spectrum analysis, meteorologic radar, computer application, computer/BESM-2 computer

ABSTRACT: Some preliminary results are given of frequency spectrum analyses made during 1965 on 60—200 μsec radar pulses reflected from the ionosphere. Experiments were made using a manually directed transmitter and a receiver with a 30 kc band-pass and a linear amplitude characteristic. From Fourier analyses of the received signals, made on a BESM-2 computer, several examples of spectra are presented. These show a substantial variety in spectral width and form, indicating both spatial and temporal variations in the reflecting ionospheric layers. Spectral widths varied from 6 to over 8 kc. In some cases the spectral

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characteristic showed a pronounced distortion. Orig. art. has: 3 figures. [WA-3] [IV]

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ZATOPLYAYEV, N.A.; KOKOUROV, O.D.

Impeller for a mechanical flotation machine. Gor. zhur. no.8:77 Ag '64. (MIRA 17:10)

KOCHERGIN, V.P.; KOKOUROVA, E.G.

Oxidation of iron in melts containing lithium, sodium, and potassium carbonates. Zhur.neorg.khim. 7 no.11:2563-2567 N '62. (MIRA 15:12)

(Iron) (Oxidation)
(Alkali metal carbonates)

VOLKOV, M.I., dots.; KOROLEV, S.A.; LOPATKIN, V.G., dots.; TOKAREV, A.P.; KOZLOVA, G.A., prof., red.; KOKOSHKO, A.G., red.; MARTYNOVA, M.N., tekhn. red.

[Socialist means of production] Sotsialisticheskii sposob proizvodstva. Moskva, Izd-vo "Mysl'." No.3. [Funds of socialist enterprises and the formation of net income in a socialist enterprise] Fondy sotsialisticheskikh predpriiatii i obrazovanie chistogo dokhoda v sotsialisticheskom khoziaistve. 1964. 186 p. (MIRA 17:4)

1. Kommunisticheskaya Partiya Sovetskogo Soyuza. Vysshaya partiynaya shkola. Kafedra politicheskoy ekonomii.

RYKOV, A.T., gornyy inzh.; FAHRICHNOV, S.M., gornyy inzh.; KOKOV, A.V., gornyy inzh.; ZORDUNOV, A.N., gornyy inzh.

Electric exploder networks in large-scale blasting at the 40th Anniversary of the All-Union Lenin Communist Youth League Mine. Gor. zhur. no.11:71-72 N '64. (MIRA 18:2)

1. Leninogorskiy polimetallicheskiy kombinat.

RYKOV, A.T., gornyy inzh.; FABRICHNOV, S.M., gornyy inzh.; KOKOV, A.V., gornyy inzh.

Ventilation of scraper levels at the mine of the 40th Anniversary of the All-Union Lenin's Young Communist League. Gor. Zhur. no.5:65-69 My '65. (MIRA 18:5)

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MONAKHOV, N.I., inzh., glavnyy red.; TURIANSKIY, M.A., inzh., zam.glavnogo red.; KOKOV, K.V., red.; AL'BATS, S.M., red.; KHAVIN, B.N., red. izd-va; GILENSON, P.G., tekhn.red.

[Collection No.14 of consolidated cost indexes of buildings and structures of light and textile industries to be used in revaluating capital assets] Sbornik no.14 ukrupnennykh pokazatelei stoimosti zdanii i sooruzhenii legkoi i tekstil'noi promyshlennosti dlia pereotsenki osnovnykh fondov. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 73 p. (MIRA 12:10)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva.
(Textile industry--Equipment and supplies)
(Factories--Equipment and supplies)

OSTROVSKIY, I.I., inzh., red.; GRIGOROV, I.I., inzh., red.; MURASHEV, A.G., inzh., red.; PECHURCHIK, S.A., inzh., red.; VEDENKIN, D.P., inzh., red.; KUDINOV, M.P., inzh. red.; YELISEYEVA, Ye.Ye., inzh., red.; PETRUNIN, I.S., inzh., red.; TURIANSKIY, M.A., inzh., red.; POZDNYAKOVA, L.V., inzh., red.; KOKOV, K.V., inzh., red.

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1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Gosstroy SSSR (for Ostrovskiy, Vedenkin, Kudinov). 3. Nauchno-issledovatel'skiy institut ekonomiki stroitel'stva Gosstroya SSSR (for Grigorov, Murashev, Petrunin, Yeliseyeva, Turianskiy, Pozdnyakova). 4. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy tsvetnoy metallurgii (for Pechurchik). 5. Gosudarstvennyy proyektnyy institut po proyektirovaniyu predpriyatiy tekstil'noy promyshlennosti (for Kokov).

MONAKHOV, N.I., inzh., glavnyy red.; TURIANSKIY, M.A., inzh., zamestitel' glavnogo red.; LOKOV, K.V., inzh., red.; NIKOLAYEV, A.M., red.; KHAVIN, B.N., red.izd-va; RUDAKOVA, N.I., tekhn.red.

[Collection No.12 of consolidated cost indexes of buildings and structures of the fish industry to be used in revaluating capital assets] Sbornik no.12 ukrupnennykh pokazatelei stoimosti zdanii i sooruzhenii rybnoi promyshlennosti dlia pereotsenki osnovnykh fondov. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 86 p. (MIRA 12:4)

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KOKOV, T.B. (g.Ordzhonikidze)

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MOLOCHNIKOV, I.M.; CHISTOSERDOV, B.P.; KOKOVA, V.A.; KORALEVA, M.P.

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PEREDY, Sandor; MONATH, Lajos; RAPELIUS, Karl (Leipzig); CALLENBERG, Waldemar (Leipzig); LIPKA, Ceslav (Praha); FREIBERGER, Rudolf, dr. ing. (Praha); SCHENKEL, Gerhard, dr. ing. (Karlsruhe); MIKULSKI, Jan, dr. ing. (Katowice); FRATZSCHER, Wolfgang, dr. ing. (Drezda); BENEDEK, Istvan; CUKOR, Gyorgy; SAGI, Marton; SOVARY, Emil; NAGY, Csaba (Roman Nepkoztarsasag); ELEFTERESCU, M. (Roman Nepkoztarsasag); KOVACS, Istvan (Roman Nepkoztarsasag); LAZAR, Peter, dr.; MEJRO, Cz., prof. (Varso); KOKOVAY, Janos, dr.; SCHAEFER, Helmuth, dr. ing. (Karlsruhe); BORBAS, Nandor; GRUHN, Gunther, Dipl. ing. (Drezda); SZABO, Bendeguz; GYORI, Attila; MOLNAR, Laszlo; RECZEY, Gusztav, dr.

Determination and application of specific power utilization indexes. Ipari energia 3 no.1/2:15-22 Ja-F '62.

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Characteristics of planning roads beyond the Arctic Circle taking into account the requirements of combatting snow. Transp.stroi. 13 no.10:48-51 O '63. (MIRA 17:8)

1. Nachal'nik tekhnicheskogo otdela Sibirskogo gosudarstvennogo proyektno-izyskatel'skogo instituta Gosudarstvennogo proizvodstvennogo komiteta po transportnomu stroitel'stvu SSSR.

LYUTS, Aleksandr Fedorovich, prof.; SOROKIN, Vasiliy Pavlovich, dots.; FINKOVSKAYA, Tamara Semenovna, dots.; KOKOVIKHIN, Mikhail Fedorovich, inzh.; KIRILENKO, Vasiliy Sergeyevich, kand. tekhn. nauk; BELIKOV, Ye.F., dots., retsenzent; KHVOSTIK, I.F., red.; KOMAR'KOVA, L.M., red.izd-va; SUNGUROV, V.S., tekhn. red.

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